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stowia, while resembling the different groups of the genus *Bertia*, in individual respects, is yet relatively furthest removed from that group which is found in marsupials.

In a summary the author notes that all *Tæniæ* at present known from aplacental mammals belong to the subfamily *Anoplocephalinæ*, which is typical for herbivors, and are found in three genera, *Moniezia*, *Bertia*, *Linstowia*. Between the *Anoplocephalinæ* of placental and aplacental mammals there exists a certain anatomical parallel, corresponding to the similarity in their manner of life and nutrition. Pure herbivors, such as ruminants and the giant kangaroo, harbor the genus *Moniezia*. The marsupials, *Phascolarctus*, *Phalanger*, as also the placental *Galeopithecus*, live on leaves, fruits, and rarely also on insects; in them is parasitic a well-circumscribed subgroup of the genus *Bertia*. Finally the aplacental insectivors, *Echidna* and *Perameles*, are inhabited by a special genus *Linstowia*, for which a parallel from Placentalia is not at present known.

H. B. W.

Histology and Physiology of the Gastræadæ.—Under this head T. Garbowski¹ describes the results of some recent observations on *Trichoplax adherens* F. E. Schulze, on which he bases certain theoretical conclusions.

He finds the body epithelia covered with a several-layered cuticle, through which project the cilia. Contrary to the statement of Schneider, these cilia are not continuous within the cytoplasm, but, as is shown by impregnation with gold chlorid, are merely outer processes of the cells. It is conclusively shown that the ventral epithelium possesses no digestive power. This function is assumed by certain cells of the loose body parenchyma. Undoubtedly only liquid food is assimilated, chiefly organic decomposition products. Other cells of the parenchyma, becoming fibrous in character, take a dorso-ventral arrangement and act as muscles. The so-called muscles of von Graff appear as artifacts under the action of certain chemical reagents.

The large spheres, regularly arranged in the parenchyma and usually described as fat bodies, are shown to be the intercellular excretory products of the animal and are closely comparable to the excretory vacuoles of the larger amœbæ. Those other yellowish brown globules, which have been variously interpreted as otoliths, spermatoblasts, etc., are more probably specimens of a symbiotic alga, *Zooxanthella*.

¹ Zur Histologie und Physiologie der Gastræaden, *Bull. Internat. de L'Académie des Sciences de Cracovie*, February, 1899, pp. 87-98.

There has also been observed in *Trichoplax* a most interesting process of conjugation, in which two individuals become joined so completely as to leave no trace of the point of fusion. This process is preparatory to mechanical fission or architomy. That it always precedes this reproduction is yet to be proved. No other method of generation has been observed.

From the above facts is drawn the conclusion that *Trichoplax* cannot, as has been claimed by the advocates of Haeckel's *Gastræa* theory, be considered as a flattened gastrula. Neither is it related to the Plathelmintha, as stated by Böhmig, since the acœlous condition of certain Turbellaria is secondary, but that of *Trichoplax* is evidently ancestral.

The author considers it unnatural to place *Trichoplax* and the closely allied *Treptoplax* in a special group, the *Placulæadæ*, and to set them as the simplest type of the multicellular animals, *Protacœlia*, at the foot of the metazoan stem. It is claimed that the mere fact that the *Protacœlia* are not hypothetical, like the *Gastræa*, but really exist, is in itself disproof of Haeckel's gastræal phylogeny; that there is danger that the advocates of this theory, in their zeal for proof of the minutiae may neglect the broader facts of development, which point so evidently to a varied origin of the Metazoa.

Trichoplax then, while it does not support the *Gastræa* theory, may yet serve as an important factor in the development of the true theory of metazoan embryology.

HARRISON S. ALLEN.

Notes. — *Gephyrea*, collected at Christmas Island, Indian Ocean, are described by Shipley (*Proc. Zool. Soc.*, London, Jan. 17, 1899). Of the six species listed only one, *Thalassema baronii* Greef, is rare. In the same paper, *Physcosoma japonicum* Grube is reported from the coast of British Columbia, though previously known only from the western shores of the Pacific Ocean.

The supposed occurrence of *Synganus trachealis*, the gape worm, in the domestic duck, as recorded by various authors, has been definitely shown by Railliet (*Arch. Parasit.*, Vol. I, No. 4, pp. 626, 627) to be due to the mistranslation of an English letter!

Recent work on the Myxosporidia is the subject of a comprehensive review by Doflein (*Zool. Centralbl.*, Vol. I, pp. 361-379). Of great general importance is noted the opinion of the author that with better knowledge of both groups this order is approaching the Rhizopoda.